

AMENDMENTS TO THE CLAIMS

Please replace the claims, including all prior versions, with the listing of claims below.

LISTING OF CLAIMS:

Claim 1 (withdrawn) A fibre-reinforced plastic structure with a hollow section which is characterized in that

(A) it is a fibre-reinforced plastic structure with a hollow section which is provided with at least one opening and with a main body portion having in the interior a cavity of maximum width greater than the maximum width of the aforesaid opening(s),

(B) the aforesaid main body portion is composed of fibre-reinforced plastic where reinforcing fibre has been impregnated with synthetic resin and, furthermore,

(C) the aforesaid main body portion has a solid of non-revolution shape where the interior maximum width (F) of the cavity is at least 0.5 m and the ratio (F/f) of the interior maximum width (F) of the cavity to the maximum width (f) of the aforesaid opening(s) lies in the range 1.1 to 500, and

(D) furthermore, the aforesaid main body portion is formed as an integral construction in which its totality substantially has no regions which are joined.

Claim 2 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 1 which is characterized in that, at the inner circumferential face of the aforesaid main body portion, there is a projecting rib which projects in the radial direction thereof.

Claim 3 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 2 which is characterized in that the aforesaid projecting rib has a frame structure with a core material present in the interior and, furthermore, with the periphery of the core material enveloped by a skin layer containing reinforcing fibre.

Claim 4 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 3 which is characterized in that, in the fibre-reinforced plastic of the aforesaid main body portion, there are substantially no reinforcing fibres extending continuously over two or more laps in the circumferential direction.

Claim 5 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 4 which is characterized in that a closed space is formed in the main body portion.

Claim 6 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 5 which is characterized in that, as well as the section in the aforesaid circumferential direction forming a closed space, a portion formed as an integral construction substantially having no joined regions is positioned at the end or at a central region of the aforesaid main body portion.

Claim 7 (withdrawn) A fibre-reinforced plastic structure with a hollow section which is characterized in that

(A) it is composed of a plurality of moulded elements,

(B) at least one of these moulded elements is a structure which is provided with at least one opening and with a main body portion having a cavity in the interior and, furthermore, the section thereof has a solid of non-revolution shape,

(C) the aforesaid main body portion is composed of fibre-reinforced plastic where the reinforcing fibre has been impregnated with synthetic resin and, furthermore,

(D) the aforesaid main body portion has in at least one location a portion forming a closed space in the circumferential direction section and which is formed as an integral construction substantially having no joined regions.

Claim 8 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 7 which is characterized in that the aforesaid opening is positioned at an end portion of the structure comprising a plurality of moulded elements.

Claim 9 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 7 or Claim 8 which is characterized in that, in the aforesaid structure, the interior maximum width (F) of the cavity is at least 0.51 m and the ratio (F/f) of the internal maximum width (F) of the cavity to the maximum width (f) of the aforesaid opening lies in the range 1.1 to 500.

Claim 10 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 9 which is characterized in that at the inner surface facing the cavity of the aforesaid structure, there is a rib projecting in the radial direction thereof.

Claim 11 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 10 which is characterized in that the aforesaid projecting rib has a frame

structure with a core material present in the interior and the periphery thereof enveloped by a skin layer containing reinforcing fibre.

Claim 12 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 11 which is characterized in that the main body portion of the aforesaid structure is formed with a shell comprising aforesaid skin layer positioned on the outside and core material positioned on the inside.

Claim 13 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 12 which is characterized in that the aforesaid structure is formed with a shell where skin layer comprising fibre-reinforced plastic is further laminated on the inside of the aforesaid core material.

Claim 14 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claims 12 or 13 which is characterized in that the aforesaid core material has a rib which extends in the radial direction of the structure.

Claim 15 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 3 to 6 and 11 to 14 which is characterized in that the aforesaid core material comprises a foam.

Claim 16 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 3 to 6 and 11 to 15 which is characterized in that a groove is formed in the surface of the aforesaid core material.

Claim 17 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 16 which is characterized in that a liner is provided in at least one part of the inner face of the aforesaid main body portion.

Claim 18 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 17 which is characterized in that the aforesaid liner has a plurality of concave grooves.

Claim 19 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 18 which is characterized in that the aforesaid reinforcing fibre is at least one type from amongst carbon fibre, glass fibre, aramid fibre, high density polyethylene fibre and polyarylate fibre.

Claim 20 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 19 which is characterized in that the aforesaid reinforcing fibre comprises carbon fibre tow, where one tow has a number of single filaments in the range 12,000 to 200,000.

Claim 21 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 20 which is characterized in that the void content of the aforesaid main body portion lies within the range 2% and below, by volume.

Claim 22 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 21 which is characterized in that the aforesaid synthetic resin is at least one type from amongst epoxy resins, unsaturated polyester resins, vinyl ester resins and phenolic resins.

Claim 23 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 22 which is characterized in that a covering layer is integrally formed at the outer face of the main body portion.

Claim 24 (withdrawn) A fibre-reinforced plastic structure with a hollow section according to Claim 23 which is characterized in that the covering layer is a gel coat layer.

Claim 25 (withdrawn) Transport modes characterized in that they have, as part thereof, a fibre-reinforced plastic structure with a hollow section according to any of Claims 1 to 24.

Claim 26 (Currently amended) A method for the production of a fiber-reinforced plastic (FRP) structure with a hollow section, comprising:

(A) providing an inner mold having a non-circular sectional shape, wherein the inner mold is positioned on a stand,

(B) arranging a substrate comprising, in part or in whole, a reinforcing fiber, wherein the substrate is arranged at the surface of the inner mold such that the reinforcing fiber does not extend continuously for two ~~or more~~ laps of a circumference of the inner mold,

(C) covering an outer periphery of the substrate with a bag and reducing an interior pressure within said bag to below atmospheric pressure, and

(D) impregnating a resin into the substrate.

Claim 27 (Previously presented) A method for the production of a fiber-reinforced plastic structure with a hollow section according to claim 26, wherein the FRP structure is cured within the temperature range 50 to 200°C.

Claim 28 (Currently amended) A method for the production of a fiber-reinforced plastic (FRP) structure with a hollow section, comprising:

(A) providing an inner mold having a non-circular sectional shape, wherein the inner mold is positioned on a stand,

(B) arranging a substrate comprising, in part or in whole, a reinforcing fiber, wherein the substrate is arranged at the surface of the inner mold such that the reinforcing fiber does not extend continuously for two ~~or more~~ laps of a circumference of the inner mold,

(C) arranging an outer mold, wherein an outer periphery of the substrate is covered with the outer mold,

(D) reducing a pressure between the outer mold and the inner mold, and

(E) impregnating a resin into the substrate.

Claims 29-31 (canceled)

Claim 32 (Previously presented) A method of claim 28, further comprising pressurizing the inner mold with a fluid.

Claim 33 (Previously presented) A method of claim 32, wherein the fluid is compressed air at a pressure within a range 0.049 to 0.98 MPa (0.5 to 10 kg/cm²G).

Claim 34 (Previously presented) A method of claim 28, wherein the inner mold has resin channel grooves in an outer face and the resin is injected into the substrate through said grooves.

Claim 35 (Previously presented) A method of claim 28, wherein a resin diffusion medium is located between the inner mold and the substrate.

Claim 36 (Previously presented) A method of claim 35, wherein the resin diffusion medium is a reticulate material.

Claim 37 (Previously presented) A method of claim 28, wherein the inner mold comprises a material selected from the group consisting of a plastic, a rubber material, a water-soluble polymer material and a wood material.

Claim 38 (Previously presented) A method of claim 28, wherein the FRP structure is held together by a vacuum molding method.

Claim 39 (Previously presented) A method of claim 28, wherein the arranging the substrate comprises securing the substrate with a retainer.

Claim 40 (Previously presented) A method of claim 28, wherein the inner mold is a hollow body made by blow molding.

Claim 41 (Previously presented) A method of claim 28, further comprising removing the inner mold from the FRP structure.

Claim 42 (Previously presented) A method of claim 28, wherein the inner mold is integrally coupled to the FRP structure and left within the FRP structure.

Claim 43 (Previously presented) A method for the production of a plurality of hollow structures of fiber-reinforced plastic comprising a plurality of molded elements, at least one of the molded elements is made by the method of claim 28 and has a section which constitutes a solid of non-circular shape and which is provided with at least one opening and having a main body portion having a cavity in the interior, the method comprising joining together the molded elements, by arranging the reinforcing fiber across the region formed by a joint between the molded elements, covering the joint with bags, reducing a pressure inside the bags, injecting resin, and causing molded elements to be mutually connected together.

Claims 44-45 (canceled)

Claim 46 (Previously Presented) A method of claim 28, wherein the impregnated resin is cured within the temperature range 50 to 200°C.

Claim 47 (Previously Presented) A method of claim 34, wherein the depth of the groove is 1 to 50 mm.

Claim 48 (Previously Presented) A method of claim 34, wherein the pitch of the groove is 5 to 900 mm.

Claim 49 (Previously Presented) A method of claim 34, wherein the width of the groove is 3 to 5 mm.

Claim 50 (Previously Presented) A method of claim 28, wherein the substrate is selected from the group consisting of a unidirectional preform, a woven material, a mat and combinations thereof.